

MWR

MORBIDITY AND MORTALITY WEEKLY REPORT

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Improving Eye Care for Persons with Diabetes Mellitus — Michigan

Since 1984, the Michigan Department of Public Health Diabetes Control Program (MDCP) has conducted a statewide project to prevent vision loss by improving detection and treatment of diabetic retinopathy. Guidelines stressing the importance of routine annual examinations by ophthalmologists have been developed and widely distributed among physicians, patient educators, and persons with diabetes mellitus (1). Patient and provider surveys to determine eye care and referral practices have also been conducted to provide a baseline for assessing the impact of the project.

A mail survey of practicing ophthalmologists was conducted between August and October 1984 to describe ophthalmologist utilization patterns for diabetic and nondiabetic persons. The survey obtained information from ophthalmologists and their patients over a 5-day period. Ophthalmologists were identified from the membership roster of the Michigan Ophthalmological Society (MOS) and were selected from urban and rural regions of the state.

Questionnaires were sent to 51 general ophthalmologists and 21 retinal specialists; the response rates were 49% and 29%, respectively. Completed questionnaires were obtained from 12% of practicing general ophthalmologists and 27% of the practicing retinal specialists who were members of the MOS.

Of the 3,923 patients who visited the responding ophthalmologists during the 5-day survey periods, the MDCP obtained data on 3,325 (85%). Approximately 10% and 17% of the patients examined by the general ophthalmologists and retinal specialists, respectively, had diabetes.

In the general ophthalmologists' practices, 14% of diabetic patients were visiting for the first time, and in the retinal specialists' practices, 19%. Similarly, 20% and 25% of nondiabetic persons were having initial eye examinations by the general ophthalmologists or retinal specialists.

Individuals receiving their initial ophthalmologic examinations were asked to identify the person who recommended the visit. Diabetic individuals reported that the most important stimulus was their physician (Table 1); the second most important professional person was their optometrist. The most important source of nonprofessional encouragement for the diabetic individuals was self-referral, which accounted for 18% of initial visits to general ophthalmologists and 8% of initial visits to retinal specialists. Collectively, relatives and friends stimulated 30% of referrals to general ophthalmologists and approximately 20% of referrals to retinal specialists.

To allow evaluation of the impact of the 1984 Diabetic Retinopathy Guidelines, a survey was conducted during May 1985 to document baseline referral patterns for eye care for persons with diabetes. The survey was sent to members of the Michigan Organization of Diabetes Educators (MODE), the principal professional organization for diabetes educators in

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Michigan. Each MODE member actively involved in patient education was asked to complete a questionnaire and have up to seven patients also complete a questionnaire before beginning instruction.

Seventy (31%) of the 228 MODE members and 202 diabetes patients completed the survey. The patient educators who responded included 52 registered nurses, 15 registered dietitians, and four other health professionals. MODE's members include 142 registered nurses, 42 registered dietitians, and 38 other health professionals (six unknown).

Responses from the diabetes educators determined that 80% always or almost always recommended that their diabetic patients have routine eye examinations. Sixty-one percent of these educators recommended an eye examination by an ophthalmologist at least every 12 months. Among the 29% of educators who had already read Michigan's guidelines, 80% indicated their practices were in accord with the guidelines, compared to 54% for those who had not read the guidelines.

Seventy-five percent of the registered nurses made patient-referral recommendations consistent with the state's recommendations, compared to 17% of the other health professionals. For example, three of the 11 registered dietitians who indicated they advised their patients regarding eye care provided recommendations equivalent to those in the guidelines.

According to the guidelines, 177 (88%) of the 202 diabetic respondents should have received an eye examination through dilated pupils by an ophthalmologist during the previous 12 months. Only 76 (43%) received such care.

When asked about professional advice provided by physicians, nurses, or health educators, 81 (46%) of the 177 diabetic individuals reported they were told to have their eyes examined at least annually, and 71 (40%) were told to go to an ophthalmologist. Only 46 (26%) of 177 were told the complete recommendations in Michigan's guidelines. Diabetic individuals who received advice consistent with the guidelines were twice as likely to have visited an ophthalmologist during the past year as those who had not received such advice (67%, compared with 34%).

Self-reported "eye problems" seemed to influence the decision of a diabetic person to have an ophthalmologic exam, but these conditions did not appear to influence whether a diabetic person followed the guidelines. Among patients who were not advised about the guidelines, 44% of those with self-reported eye problems visited ophthalmologists within the past

TABLE 1. Sources of recommendation for initial ophthalmologic examination of diabetic and nondiabetic persons — Michigan, 1984

| Source of recommendation* | General ophthalmologists | | Retinal specialists | |
|---------------------------------|--------------------------|------------------------|---------------------|------------------------|
| | Diabetic No. (%) | Nondiabetic No. (%) | Diabetic No. (%) | Nondiabetic No. (%) |
| Physician | 15 (45) | 95 (22) | 12 (50) | 26 (38) |
| Optometrist | 2 (6) | 46 (10) | 2 (8) | 11 (16) |
| Other health-care professionals | 0 (0) | 20 (5) | 2 (8) | 4 (6) |
| Self | 6 (18) | 93 (21) | 2 (8) | 4 (6) |
| Relative | 5 (15) | 81 (18) | 3 (13) | 14 (20) |
| Friend | 5 (15) | 81 (18) | 2 (8) | 10 (14) |
| Other nonhealth-care personnel | 0 (0) | 14 (3) | 1 (4) | 1 (1) |
| Not stated | 1 (3) | 13 (3) | 0 (0) | 1 (1) |
| Total | 33 (100) | 439 (100) | 24 (100) | 69 (100) |

*The categories may sum to more than the total because several respondents named more than one source.

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12 months, compared to 25% of those without problems. Among individuals who were advised, 70% of those with eye problems and 63% of those without eye problems reported visiting an ophthalmologist within the past 12 months.

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Editorial Note: Diabetic retinopathy accounts for at least 10% of new cases of legal blindness in the United States each year and is the leading cause of new cases of legal blindness in adults aged 20-74 years (2). Proliferative diabetic retinopathy, the most severe form, is generally asymptomatic in its most treatable stages. In a university setting, 52% of internists and 33% of diabetologists missed the diagnosis of proliferative retinopathy, while fewer than 10% of ophthalmologists missed this diagnosis (3). A recent study, however, found that 37% of persons with earlier onset and 50% of persons with later onset of diabetes had not received an ophthalmologic exam within the past 2 years (4).

In Michigan, public health officials are working to improve the level of diabetic care. They have developed referral guidelines for the detection of diabetic retinopathy, and they are disseminating these guidelines to physicians, diabetes educators, and other primary health-care providers. In addition, they are using media coverage to inform diabetic persons of the need for annual ophthalmologic examinations.

Surveys conducted in Michigan have attempted to document the current referral practices of providers and the care-seeking behavior of diabetic individuals and suggest that considerable improvements should be made in ophthalmologic utilization, patient and professional education, and patient-referral recommendations. Because these surveys had low response rates, caution must be used when making inferences from these findings. Additional information was not available to address the issue of selection bias. Subsequent surveys will be designed to improve response rates and collect information on nonrespondents.

Survey information from Michigan, thus far, is encouraging. For example, appropriate changes in patient behavior are occurring. Patients who did not report eye problems but who received recommendations consistent with Michigan's guidelines were much more likely to visit ophthalmologists than patients with eye problems who did not receive the guidelines. Further evaluation will be necessary to determine the impact of Michigan's Diabetic Retinopathy Guidelines. It will be necessary to document changes in retinopathy referral patterns and care-seeking behavior of the diabetic individual.

In an effort to prevent blindness associated with diabetic eye disease, CDC continues to support retinopathy projects in Georgia, Michigan, and Mississippi and is initiating eye-care projects for diabetic persons in the following states: Colorado, Florida, Kansas, Kentucky, Maryland, Massachusetts, Minnesota, New York, Ohio, and West Virginia. The program provides for examination of diabetic persons at high risk for retinopathy. These include persons who have noninsulin-dependent diabetes mellitus or postpubertal individuals with insulin-dependent diabetes mellitus of 5 or more years duration. Participants will also be examined for glaucoma, cataracts, and impaired visual acuity and for hypertension that can be associated with the development of retinopathy. Patients identified with treatable conditions will be assured access to care, and all participants will be referred for annual eye examinations. Those requesting further information should contact the state health departments in the states listed above or the Division of Diabetes Control, Center for Prevention Services, CDC.

References

1. Michigan Department of Public Health. Diabetic retinopathy guidelines, 1984.
2. Kahn HA, Moorhead HB. Statistics on blindness in the model reporting area, 1969-70. National Eye Institute, 1973.
3. Sussman EJ, Tsiaras WG, Soper KA. Diagnosis of diabetic eye disease. *JAMA* 1982;247:3231-4.
4. Witkin SR, Klein R. Ophthalmologic care for persons with diabetes. *JAMA* 1984;251:2534-7.

Human Rabies Diagnosed 2 Months Postmortem — Texas

The first case of human rabies reported in the United States in 1985 was diagnosed July 16, 1985, by an Abilene, Texas, pathologist who noted encephalitis suggestive of rabies on reviewing sections of the brain of a patient who had died May 20. The patient, a 19-year-old Mexican national, had lived in Texas after arriving in the United States approximately 1½ months before the onset of his illness. He had no known history of exposure to rabies.

The patient was in good health until May 2 or 3, when he developed nausea, vomiting, and shortness of breath. On the morning of May 5, he was seen at the emergency room of an Abilene hospital. Temperature, pulse, and blood pressure were normal. Physical examination and a chest roentgenogram did not reveal abnormalities, and the patient was discharged from the emergency room.

Shortly after midnight on May 6, he returned to the emergency room because of intensification of breathing difficulties, persistent nausea and vomiting, and fever of 40.6 C (105 F). His blood pressure fluctuated between 215/140 and 80/0. He was coherent enough to answer questions in Spanish; however, because he spoke no English, no detailed history of his activities for the past several months was obtained. Tetanus and rabies were considered,

(Continued on page 705)

TABLE 1. Summary—cases of specified notifiable diseases, United States

| Disease | 46th Week Ending | | | Cumulative, 46th Week Ending | | |
|---|------------------|---------------|------------------|------------------------------|---------------|------------------|
| | Nov. 16, 1985 | Nov. 17, 1984 | Median 1980-1984 | Nov. 16, 1985 | Nov. 17, 1984 | Median 1980-1984 |
| Acquired Immunodeficiency Syndrome (AIDS) | 121 | 89 | N | 7,016 | 3,732 | N |
| Aseptic meningitis | 224 | 195 | 195 | 9,153 | 7,273 | 8,550 |
| Encephalitis: Primary (arthropod-borne & unspecified) | 27 | 18 | 37 | 1,135 | 1,061 | 1,377 |
| Post-infectious | - | - | - | 107 | 103 | 81 |
| Gonorrhea: Civilian | 14,639 | 16,982 | 17,801 | 745,765 | 745,193 | 849,153 |
| Military | 301 | 328 | 331 | 16,222 | 18,958 | 23,482 |
| Hepatitis: Type A | 415 | 439 | 540 | 20,097 | 18,984 | 20,274 |
| Type B | 525 | 493 | 480 | 23,111 | 22,900 | 19,225 |
| Non A, Non B | 61 | 85 | N | 3,600 | 3,352 | N |
| Unspecified | 75 | 104 | 195 | 5,078 | 4,526 | 7,660 |
| Legionellosis | 15 | 8 | N | 579 | 610 | N |
| Leprosy | 14 | 5 | 3 | 321 | 200 | 200 |
| Malaria | 28 | 19 | 20 | 903 | 894 | 951 |
| Measles: Total* | 1 | 4 | 25 | 2,601 | 2,443 | 2,443 |
| Indigenous | 1 | 3 | N | 2,167 | 2,153 | N |
| Imported | - | 1 | N | 434 | 290 | N |
| Meningococcal infections: Total | 28 | 55 | 55 | 2,080 | 2,377 | 2,410 |
| Civilian | 28 | 55 | 55 | 2,076 | 2,373 | 2,395 |
| Military | - | - | - | 4 | 4 | 14 |
| Mumps | 25 | 48 | 75 | 2,574 | 2,613 | 3,981 |
| Pertussis | 59 | 28 | 29 | 2,889 | 2,097 | 1,556 |
| Rubella (German measles) | 4 | 13 | 17 | 585 | 683 | 1,919 |
| Syphilis (Primary & Secondary): Civilian | 370 | 499 | 594 | 22,601 | 24,698 | 27,393 |
| Military | 1 | 2 | 4 | 127 | 263 | 336 |
| Tuberculosis | 5 | 7 | N | 313 | 422 | N |
| Toxic Shock syndrome | 342 | 327 | 459 | 18,778 | 18,726 | 22,502 |
| Typhoid fever | 6 | 2 | 3 | 151 | 268 | 250 |
| Typhus fever, tick-borne (RMSF) | 14 | 14 | 6 | 330 | 336 | 409 |
| Typhus fever, tick-borne (RMSF) | 7 | 7 | 5 | 869 | 808 | 1,078 |
| Rabies, animal | 86 | 94 | 94 | 4,726 | 4,847 | 5,618 |

TABLE 2. Notifiable diseases of low frequency, United States

| | Cum 1985 | | Cum 1985 |
|------------------------------------|----------|---|----------|
| Anthrax | - | Leptospirosis (Mich 2) | 33 |
| Botulism: Foodborne | 43 | Plague (Colo. 1) | 16 |
| Infant | 58 | Polio myelitis: Total | 5 |
| Oral | 1 | Paralytic | 5 |
| Brucellosis (Mo. 1, Ga. 1) | 121 | Psittacosis (Mich. 4) | 98 |
| Cholera | 3 | Rabies, human | 1 |
| Congenital rubella syndrome | - | Tetanus (Va. 1, Calif. 1) | 64 |
| Congenital syphilis, ages < 1 year | 149 | Trichinosis | 54 |
| Diphtheria | 1 | Typhus fever, flea-borne (endemic, murine) (Calif. 1) | 22 |

*There were no cases of internationally imported measles reported for this week.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending
November 16, 1985 and November 17, 1984 (46th Week)

| Reporting Area | AIDS | Aseptic Meningi- tis | Encephalitis | | Gonorrhea (Civilian) | | Hepatitis (Viral), by type | | | | Legionel- losis | Leptosp |
|------------------|-------------|----------------------------|--------------|----------------------|-------------------------|-------------|----------------------------|------|-------|------------------|--------------------|-------------|
| | | | Primary | Post-in- fectious | | | A | B | NA/NB | Unspeci- fied | | |
| | Cum 1985 | 1985 | Cum 1985 | Cum 1985 | Cum 1985 | Cum 1984 | 1985 | 1985 | 1985 | 1985 | 1985 | Cum 1985 |
| UNITED STATES | 7,016 | 224 | 1,135 | 107 | 745,765 | 745,193 | 415 | 525 | 61 | 75 | 15 | 321 |
| NEW ENGLAND | 235 | 26 | 31 | - | 20,147 | 20,210 | 13 | 42 | 8 | 11 | 1 | 7 |
| Maine | 11 | - | - | - | 1,028 | 884 | - | 2 | - | - | - | - |
| N.H. | 3 | - | 7 | - | 506 | 657 | - | - | - | - | - | - |
| Vt. | 2 | - | - | - | 295 | 337 | 1 | - | - | - | - | - |
| Mass. | 138 | 9 | 18 | - | 8,362 | 8,605 | - | 17 | 8 | 8 | 1 | 7 |
| R.I. | 12 | 2 | - | - | 1,625 | 1,449 | 2 | 7 | - | - | - | - |
| Conn. | 69 | 15 | 6 | - | 8,331 | 8,277 | 10 | 16 | - | 3 | - | - |
| MID ATLANTIC | 2,744 | 61 | 142 | 11 | 113,108 | 99,894 | 22 | 55 | 8 | 3 | - | 35 |
| Upstate N.Y. | 298 | 26 | 45 | 4 | 15,932 | 16,077 | 6 | 20 | 4 | 1 | - | 1 |
| N.Y. City | 1,890 | 2 | 16 | - | 54,766 | 38,632 | 1 | - | - | - | - | 30 |
| N.J. | 396 | 21 | 28 | - | 17,200 | 17,846 | 6 | 16 | 2 | 1 | - | - |
| Pa. | 160 | 12 | 53 | 7 | 25,210 | 27,339 | 9 | 19 | 2 | 1 | - | 4 |
| E.N. CENTRAL | 301 | 25 | 335 | 20 | 104,069 | 104,553 | 18 | 32 | 3 | 3 | 4 | 21 |
| Ohio | 51 | 7 | 139 | 4 | 28,642 | 27,942 | 7 | 14 | - | - | 4 | 3 |
| Ind. | 24 | 1 | 65 | 2 | 11,240 | 11,332 | - | 2 | - | - | - | - |
| Ill. | 150 | 9 | 53 | 8 | 24,346 | 22,832 | 1 | 3 | - | - | - | 16 |
| Mich. | 54 | 8 | 58 | - | 29,894 | 30,729 | 10 | 13 | 3 | 3 | - | 2 |
| Wis. | 22 | - | 20 | 6 | 9,947 | 11,718 | - | - | - | - | - | - |
| W.N. CENTRAL | 98 | 9 | 71 | 4 | 36,961 | 36,944 | 11 | 17 | - | 1 | 4 | 2 |
| Minn. | 34 | 1 | 34 | 1 | 5,462 | 5,513 | 2 | - | - | - | 1 | 1 |
| Iowa | 10 | 5 | 26 | - | 3,966 | 4,028 | - | 3 | - | - | 1 | - |
| Mo. | 40 | 3 | - | - | 17,869 | 17,719 | 1 | 11 | - | 1 | 1 | - |
| N. Dak. | 1 | - | - | 1 | 249 | 344 | - | - | - | - | - | - |
| S. Dak. | 1 | - | - | - | 707 | 868 | 7 | 1 | - | - | - | - |
| Nebr. | 3 | - | 5 | - | 3,168 | 2,752 | - | - | - | - | 1 | - |
| Kans. | 9 | - | 6 | 2 | 5,540 | 5,720 | 1 | 2 | - | - | - | - |
| S. ATLANTIC | 1,075 | 58 | 133 | 42 | 165,035 | 188,701 | 40 | 139 | 11 | 8 | 5 | 8 |
| Del. | 10 | 4 | 8 | - | 3,919 | 3,548 | 1 | - | - | 1 | - | - |
| Md. | 120 | 5 | 28 | 1 | 25,749 | 21,393 | - | 29 | - | - | 1 | 1 |
| D.C. | 156 | - | - | - | 14,073 | 13,394 | - | 3 | - | - | - | - |
| Va. | 90 | 10 | 27 | 6 | 17,127 | 17,871 | 10 | 8 | 3 | 1 | 2 | - |
| W. Va. | 6 | 3 | 37 | - | 2,329 | 2,397 | - | 2 | - | - | 2 | - |
| N.C. | 57 | 4 | 27 | 1 | 32,669 | 30,435 | 5 | 12 | - | 1 | - | 2 |
| S.C. | 25 | 6 | 6 | - | 19,523 | 19,281 | 1 | 15 | - | - | - | - |
| Ga. | 164 | 2 | - | - | - | 34,995 | 3 | 25 | 2 | - | - | 1 |
| Fla. | 447 | 24 | - | 34 | 49,646 | 45,387 | 20 | 45 | 6 | 5 | - | 4 |
| E.S. CENTRAL | 63 | 7 | 37 | 4 | 67,875 | 67,291 | 3 | 22 | 2 | 3 | 1 | - |
| Ky. | 15 | 7 | 17 | - | 7,803 | 8,010 | 1 | 3 | - | 1 | - | - |
| Tenn. | 16 | - | 6 | - | 26,024 | 27,282 | 1 | 3 | - | 1 | - | - |
| Ala. | 25 | - | 11 | 4 | 20,371 | 20,528 | 1 | 10 | 1 | - | 1 | - |
| Miss. | 7 | - | 3 | - | 13,677 | 11,471 | - | 6 | 1 | 1 | - | - |
| W.S. CENTRAL | 511 | 12 | 136 | 2 | 99,423 | 100,823 | 52 | 32 | 8 | 18 | - | 26 |
| Ark. | 7 | - | 6 | 1 | 9,426 | 9,307 | - | - | - | - | - | 1 |
| La. | 80 | 3 | 9 | - | 18,947 | 22,041 | 3 | 1 | 2 | - | - | 7 |
| Okla. | 15 | - | 24 | 1 | 11,080 | 11,119 | 5 | 4 | - | - | - | - |
| Tex. | 409 | 9 | 97 | - | 59,970 | 58,356 | 44 | 27 | 6 | 18 | - | 18 |
| MOUNTAIN | 131 | 10 | 40 | 6 | 24,643 | 24,480 | 59 | 38 | 7 | 5 | - | 9 |
| Mont. | 1 | - | - | - | 716 | 937 | 3 | 3 | - | - | - | - |
| Idaho | 1 | 1 | - | - | 837 | 1,169 | 5 | 3 | - | - | - | - |
| Wyo. | - | - | 1 | - | 577 | 658 | - | - | - | - | - | - |
| Colo. | 45 | 1 | 6 | 2 | 7,156 | 7,008 | 7 | 3 | - | 3 | - | 2 |
| N. Mex. | 12 | 5 | 3 | - | 2,787 | 2,964 | 1 | 2 | - | - | - | - |
| Ariz. | 50 | 2 | 17 | - | 7,371 | 6,769 | 35 | 19 | 6 | 2 | - | 1 |
| Utah | 13 | - | 10 | 4 | 1,199 | 1,168 | 1 | 3 | 1 | - | - | 4 |
| Nev. | 9 | 1 | 3 | - | 4,000 | 3,807 | 7 | 5 | - | - | - | 2 |
| PACIFIC | 1,858 | 16 | 210 | 18 | 114,504 | 102,297 | 197 | 148 | 14 | 23 | - | 213 |
| Wash. | 107 | - | 13 | 1 | 8,786 | 7,928 | - | - | - | - | - | 34 |
| Oreg. | 29 | - | 1 | - | 5,739 | 5,915 | 60 | 21 | 3 | 1 | - | 4 |
| Calif. | 1,701 | 15 | 158 | 17 | 95,681 | 84,216 | 120 | 127 | 10 | 22 | - | 154 |
| Alaska | 3 | - | 38 | - | 2,771 | 2,511 | - | - | 1 | - | - | - |
| Hawaii | 18 | 1 | - | - | 1,527 | 1,727 | 17 | - | - | - | - | 21 |
| Guam | 1 | U | - | - | 156 | 213 | U | U | U | U | U | 3 |
| F.R. | 85 | U | 6 | 2 | 2,732 | 2,980 | U | U | U | U | U | 2 |
| V.I. | 2 | - | - | - | 369 | 472 | - | - | - | - | - | - |
| Pac. Trust Terr. | - | U | - | - | 146 | - | U | U | U | U | U | 20 |

N: Not notifiable

U: Unavailable

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending
November 16, 1985 and November 17, 1984 (46th Week)

| Reporting Area | Malina | Measles (Rubella) | | | | Meningeal infections | | Mumps | | Pertussis | | | Rubella | | |
|------------------|--------|-------------------|-------|------------|------|-------------------------|-----------|-------|-----------|-----------|-----------|-----------|---------|-----------|-----------|
| | | Indigenous | | Imported * | | Total | | 1985 | | 1985 | | | 1985 | | |
| | | Cum. 1985 | 1985 | Cum. 1985 | 1985 | Cum. 1985 | Cum. 1984 | 1985 | Cum. 1985 | 1985 | Cum. 1985 | Cum. 1984 | 1985 | Cum. 1985 | Cum. 1984 |
| UNITED STATES | 903 | 1 | 2,167 | - | 434 | 2,443 | 2,080 | 25 | 2,574 | 59 | 2,889 | 2,097 | 4 | 585 | 683 |
| NEW ENGLAND | 52 | - | 38 | - | 88 | 106 | 98 | - | 58 | 2 | 199 | 70 | - | 12 | 18 |
| Maine | 4 | - | - | - | 1 | 54 | 9 | - | 6 | - | 10 | 4 | - | - | 1 |
| N.H. | 4 | - | - | - | - | 36 | 14 | - | 10 | - | 107 | 17 | - | 2 | 1 |
| Vt. | 1 | - | - | - | - | 7 | 10 | - | 3 | - | 3 | 23 | - | - | - |
| Mass. | 25 | - | 34 | - | 84 | 49 | 17 | - | 17 | - | 46 | 18 | - | 6 | 16 |
| R.I. | 6 | - | - | - | - | - | 17 | - | 15 | - | 22 | 4 | - | - | - |
| Conn. | 12 | - | 4 | - | 3 | 14 | 36 | - | 7 | 2 | 11 | 4 | - | 4 | - |
| MID ATLANTIC | 141 | - | 193 | - | 38 | 162 | 366 | 2 | 300 | 6 | 230 | 181 | - | 226 | 223 |
| Upstate N.Y. | 49 | - | 72 | - | 13 | 41 | 143 | 2 | 161 | 1 | 107 | 102 | - | 18 | 99 |
| N.Y. City | 53 | - | 67 | - | 12 | 109 | 83 | - | 30 | - | 27 | 8 | - | 185 | 103 |
| N.J. | 15 | - | 17 | - | 10 | 7 | 89 | - | 46 | - | 11 | 13 | - | 9 | 20 |
| Pa. | 24 | - | 37 | - | 3 | 5 | 102 | - | 63 | 5 | 85 | 58 | - | 14 | 1 |
| E.N. CENTRAL | 59 | - | 436 | - | 90 | 697 | 363 | 8 | 904 | 11 | 645 | 483 | - | 33 | 100 |
| Ohio | 11 | - | - | - | 54 | 9 | 115 | 8 | 273 | 8 | 109 | 75 | - | - | 2 |
| Ind. | 4 | - | 55 | - | 2 | 3 | 47 | - | 37 | - | 188 | 229 | - | 1 | 5 |
| Ill. | 21 | - | 286 | - | 10 | 181 | 83 | - | 200 | 1 | 47 | 27 | - | 16 | 63 |
| Mich. | 17 | - | 37 | - | 23 | 464 | 90 | - | 310 | 1 | 47 | 30 | - | 15 | 22 |
| Wis. | 6 | - | 58 | - | 1 | 40 | 28 | - | 84 | 1 | 254 | 122 | - | 1 | 8 |
| W.N. CENTRAL | 31 | - | 2 | - | 10 | 56 | 105 | - | 78 | 9 | 221 | 124 | 1 | 20 | 39 |
| Miss. | 14 | - | - | - | 6 | 47 | 26 | - | 1 | 5 | 113 | 16 | - | 2 | 4 |
| Iowa | 2 | - | - | - | - | - | 10 | - | 16 | 2 | 30 | 13 | - | 1 | 1 |
| Mo. | 5 | - | 1 | - | 2 | 4 | 41 | - | 14 | 2 | 30 | 20 | - | 8 | - |
| N. Dak. | 2 | - | - | - | 2 | - | 5 | - | 4 | - | 3 | - | - | 2 | 3 |
| S. Dak. | 1 | - | - | - | - | - | 3 | - | 3 | - | 3 | 9 | - | - | - |
| Nebr. | 1 | - | - | - | - | - | 9 | - | 3 | - | 8 | 12 | - | - | - |
| Kans. | 6 | - | 1 | - | - | 5 | 11 | - | 40 | - | 28 | 54 | - | 7 | 31 |
| S. ATLANTIC | 103 | - | 279 | - | 30 | 66 | 397 | 2 | 255 | 5 | 376 | 210 | - | 55 | 27 |
| Del. | - | - | - | - | - | - | 11 | - | 1 | - | 2 | 2 | - | - | 2 |
| Md. | 25 | - | 104 | - | 9 | 22 | 55 | - | 33 | 1 | 158 | 61 | - | 6 | 1 |
| D.C. | 8 | - | 9 | - | 1 | 8 | 7 | - | 46 | - | 1 | 19 | - | - | - |
| Va. | 20 | - | 21 | - | 7 | 5 | 48 | - | 36 | - | 19 | 19 | - | 2 | - |
| W. Va. | 2 | - | 31 | - | 2 | - | 8 | 2 | 70 | - | 4 | 11 | - | 9 | - |
| N.C. | 9 | - | 9 | - | 1 | 54 | - | - | 19 | 1 | 32 | 34 | - | 1 | - |
| S.C. | - | - | - | - | 3 | 1 | 34 | - | 11 | - | 2 | 2 | - | 3 | - |
| Ge. | 9 | - | 8 | - | - | 2 | 69 | - | 28 | - | 93 | 17 | - | 4 | 2 |
| Fla. | 30 | - | 97 | - | 8 | 27 | 111 | - | 47 | 3 | 67 | 64 | - | 29 | 22 |
| E.S. CENTRAL | 11 | - | - | - | 7 | 6 | 91 | 1 | 30 | 5 | 63 | 14 | - | 3 | 12 |
| Ky. | 4 | - | - | - | 5 | 1 | 9 | - | 8 | - | 8 | 2 | - | 3 | 6 |
| Tenn. | - | - | - | - | 1 | 2 | 35 | 1 | 18 | - | 25 | 7 | - | - | - |
| Ala. | 6 | - | - | - | - | 3 | 26 | - | 1 | 2 | 23 | 1 | - | - | 3 |
| Miss. | 1 | - | - | - | 1 | - | 21 | - | 3 | 3 | 7 | 4 | - | - | 3 |
| W.S. CENTRAL | 82 | - | 421 | - | 15 | 565 | 177 | 7 | 289 | 12 | 517 | 324 | 2 | 39 | 54 |
| Ark. | 3 | - | - | - | - | 8 | 18 | 1 | 7 | - | 14 | 22 | - | 1 | 3 |
| La. | 1 | - | 42 | - | - | 8 | 25 | - | 2 | 1 | 17 | 8 | - | - | - |
| Okla. | 5 | - | - | - | 1 | 8 | 32 | N | N | 1 | 159 | 243 | - | 1 | - |
| Tex. | 73 | - | 379 | - | 14 | 541 | 102 | 6 | 280 | 10 | 327 | 51 | 2 | 37 | 51 |
| MOUNTAIN | 50 | - | 497 | - | 51 | 145 | 92 | - | 230 | 5 | 207 | 121 | - | 5 | 21 |
| Mont. | - | - | 122 | - | 17 | - | 11 | - | 11 | - | 9 | 19 | - | - | - |
| Idaho | 3 | - | 126 | - | 18 | 23 | 5 | - | 9 | - | 7 | 7 | - | 1 | 1 |
| Wyo. | 1 | - | 5 | - | - | - | 6 | - | 2 | - | - | 6 | - | - | 2 |
| Colo. | 15 | - | 6 | - | 7 | 6 | 23 | - | 24 | 2 | 85 | 45 | - | - | - |
| N. Mex. | 14 | - | 1 | - | 5 | 88 | 10 | N | N | 13 | 11 | - | - | 2 | 1 |
| Ariz. | 11 | - | 237 | - | 4 | 1 | 22 | - | 113 | 2 | 40 | 24 | - | 1 | 4 |
| Utah | 2 | - | - | - | - | 27 | 9 | - | 6 | 1 | 53 | 7 | - | - | 7 |
| Nev. | 4 | - | - | - | - | - | 6 | - | 65 | - | - | 2 | - | 1 | 4 |
| PACIFIC | 374 | 1 | 301 | - | 105 | 640 | 391 | 5 | 430 | 4 | 431 | 570 | 1 | 192 | 189 |
| Wash. | 23 | - | 90 | - | 39 | 154 | 65 | - | 35 | - | 75 | 316 | - | 14 | 1 |
| Oreg. | 13 | - | 4 | - | 1 | - | 35 | N | N | 4 | 49 | 30 | 1 | 2 | 2 |
| Calif. | 319 | 1 | 189 | - | 60 | 323 | 270 | 5 | 367 | - | 260 | 148 | - | 133 | 180 |
| Alaska | 2 | - | - | - | - | - | 9 | - | 9 | - | 30 | 1 | - | 1 | 1 |
| Hawaii | 17 | - | 18 | - | 5 | 163 | 12 | - | 19 | - | 17 | 75 | - | 42 | 5 |
| Guam | 1 | U | 10 | U | 1 | 90 | - | U | 5 | U | - | - | U | 2 | 4 |
| P.R. | - | U | 67 | U | - | 137 | 13 | - | 146 | U | 12 | 1 | U | 27 | 19 |
| V.I. | - | - | 4 | - | 6 | - | - | - | 3 | - | - | - | - | - | - |
| Pac. Trust Terr. | - | - | U | - | U | - | - | - | 3 | U | - | - | - | U | - |

*For measles only, imported cases includes both out-of-state and international importations.

N Not notifiable U Unavailable † International § Out-of-state

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending
November 16, 1985 and November 17, 1984 (46th Week)

| Reporting Area | Syphilis (Civilian) (Primary & Secondary) | | Toxic- shock Syndrome | Tuberculosis | | Tula- remia | Typhoid Fever | Typhus Fever (Tick-borne) (RMSF) | Rubens, Animal |
|------------------|--|--------------|-----------------------------|--------------|--------------|----------------|------------------|--|-------------------|
| | Cum. 1985 | Cum. 1984 | | Cum. 1985 | Cum. 1984 | | | | |
| UNITED STATES | 22,601 | 24,698 | 5 | 18,778 | 18,726 | 151 | 330 | 669 | 4,726 |
| NEW ENGLAND | 525 | 467 | 2 | 649 | 565 | 4 | 13 | 8 | 20 |
| Maine | 13 | 9 | - | 41 | 28 | - | - | - | - |
| N.H. | 36 | 14 | - | 20 | 26 | - | - | - | - |
| Vt. | 5 | 1 | - | 8 | 7 | - | - | - | - |
| Mass. | 261 | 266 | - | 384 | 314 | 4 | 10 | 6 | 1 |
| R.I. | 15 | 19 | 1 | 50 | 45 | - | - | 1 | 11 |
| Conn. | 195 | 158 | 1 | 146 | 145 | - | 3 | - | 7 |
| MID ATLANTIC | 3,193 | 3,290 | - | 3,358 | 3,396 | 2 | 49 | 34 | 555 |
| Upstate N.Y. | 238 | 292 | - | 586 | 528 | - | 13 | 9 | 130 |
| N.Y. City | 1,929 | 1,984 | - | 1,637 | 1,385 | 1 | 25 | 5 | - |
| N.J. | 620 | 581 | - | 453 | 756 | 1 | 10 | 4 | 39 |
| Pa. | 406 | 433 | - | 682 | 727 | - | 1 | 16 | 386 |
| E.N. CENTRAL | 886 | 1,169 | 1 | 2,298 | 2,431 | 3 | 40 | 43 | 169 |
| Ohio | 134 | 212 | 1 | 397 | 438 | - | 11 | 27 | 28 |
| Ind. | 74 | 125 | - | 291 | 292 | - | 3 | 5 | 23 |
| Ill. | 400 | 429 | - | 990 | 1,007 | 2 | 16 | 9 | 38 |
| Mich. | 219 | 334 | - | 491 | 548 | - | 8 | 2 | 25 |
| Wis. | 59 | 69 | - | 129 | 146 | 1 | 2 | - | 55 |
| W.N. CENTRAL | 211 | 327 | - | 522 | 575 | 46 | 13 | 42 | 847 |
| Minn. | 42 | 84 | - | 112 | 100 | 1 | 6 | - | 163 |
| Iowa | 18 | 11 | - | 53 | 58 | - | 3 | 1 | 140 |
| Mo. | 114 | 166 | - | 250 | 287 | 30 | 3 | 7 | 46 |
| N. Dak. | 3 | 9 | - | 9 | 13 | - | - | 1 | 126 |
| S. Dak. | 6 | 1 | - | 27 | 22 | 8 | - | 2 | 294 |
| Neb. | 6 | 15 | - | 12 | 29 | 2 | 1 | 4 | 34 |
| Kans. | 22 | 41 | - | 59 | 66 | 5 | - | 27 | 44 |
| S. ATLANTIC | 5,585 | 7,257 | - | 3,849 | 3,880 | 6 | 35 | 318 | 1,202 |
| Del. | 36 | 19 | - | 41 | 50 | 1 | - | 3 | 1 |
| Md. | 397 | 441 | - | 356 | 363 | - | 11 | 26 | 603 |
| D.C. | 297 | 292 | - | 138 | 156 | - | - | - | - |
| Va. | 267 | 376 | - | 376 | 376 | - | 3 | 25 | 165 |
| W. Va. | 23 | 18 | - | 99 | 122 | - | 1 | 2 | 28 |
| N.C. | 609 | 765 | - | 497 | 591 | 4 | 4 | 131 | 11 |
| S.C. | 712 | 688 | - | 467 | 468 | - | 1 | 71 | 61 |
| Ge. | - | 1,254 | - | 645 | 587 | - | 3 | 48 | 190 |
| Fla. | 3,244 | 3,404 | - | 1,238 | 1,167 | - | 12 | 12 | 143 |
| E.S. CENTRAL | 1,934 | 1,797 | - | 1,635 | 1,758 | 9 | 5 | 74 | 224 |
| Ky. | 63 | 88 | - | 402 | 411 | - | 1 | 13 | 33 |
| Tenn. | 568 | 462 | - | 485 | 508 | 7 | 2 | 32 | 66 |
| Ala. | 595 | 602 | - | 482 | 519 | 1 | 2 | 15 | 118 |
| Miss. | 708 | 645 | - | 266 | 320 | 1 | - | 14 | 7 |
| W.S. CENTRAL | 5,490 | 6,014 | - | 2,384 | 2,238 | 58 | 29 | 133 | 774 |
| Ark. | 292 | 198 | - | 281 | 255 | 35 | - | 16 | 129 |
| La. | 959 | 1,071 | - | 335 | 322 | - | 1 | 4 | 19 |
| Okla. | 170 | 188 | - | 229 | 212 | 17 | 2 | 90 | 97 |
| Tex. | 4,069 | 4,557 | - | 1,539 | 1,449 | 6 | 26 | 23 | 529 |
| MOUNTAIN | 667 | 570 | 1 | 504 | 510 | 15 | 12 | 14 | 414 |
| Mont. | 6 | 3 | - | 46 | 17 | 4 | - | 6 | 210 |
| Idaho | 5 | 22 | - | 23 | 27 | - | - | - | 10 |
| Wyo. | 10 | 7 | - | 5 | 4 | - | - | 4 | 27 |
| Colo. | 191 | 153 | - | 72 | 4 | 2 | 4 | 2 | 25 |
| N. Mex. | 112 | 77 | - | 82 | 95 | 2 | 4 | - | 12 |
| Ariz. | 281 | 210 | 1 | 229 | 233 | 4 | 3 | - | 115 |
| Utah | 8 | 18 | - | 17 | 35 | 3 | 1 | - | 4 |
| Nev. | 54 | 80 | - | 30 | 35 | - | - | 2 | 11 |
| PACIFIC | 4,110 | 3,807 | 1 | 3,579 | 3,373 | 8 | 134 | 3 | 521 |
| Wash. | 97 | 136 | - | 210 | 174 | - | 1 | - | 4 |
| Oreg. | 92 | 102 | - | 119 | 137 | 1 | 5 | - | 4 |
| Calif. | 3,855 | 3,492 | 1 | 2,992 | 2,803 | 4 | 122 | 3 | 510 |
| Alaska | 4 | 6 | - | 89 | 64 | 3 | 2 | - | 3 |
| Hawaii | 62 | 71 | - | 169 | 195 | - | 4 | - | - |
| Guam | 2 | - | - | 35 | 48 | - | 3 | - | - |
| P.R. | 758 | 690 | U | 307 | 343 | - | 3 | - | - |
| V.I. | 3 | 10 | - | 1 | 4 | - | 52 | - | 34 |
| Pac. Trust Terr. | 13 | - | U | 16 | - | - | - | - | - |

U Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending
November 16, 1985 (46th Week)

| Reporting Area | All Causes, By Age (Years) | | | | | | | P&I** Total | Reporting Area | All Causes, By Age (Years) | | | | | | | P&I** Total |
|---------------------|----------------------------|-------|-------|-------|------|----|-------------|----------------|-----------------------|----------------------------|-------|-------|------|-----|-----|-----|----------------|
| | All Ages | ≥65 | 45-64 | 25-44 | 1-24 | <1 | All Ages | | | ≥65 | 45-64 | 25-44 | 1-24 | <1 | | | |
| NEW ENGLAND | 703 | 512 | 119 | 44 | 11 | 17 | 56 | | S. ATLANTIC | 1,124 | 756 | 218 | 80 | 31 | 39 | 64 | |
| Boston, Mass. | 208 | 130 | 42 | 19 | 4 | 11 | 20 | | Atlanta, Ga. | 132 | 79 | 36 | 11 | 1 | 5 | 2 | |
| Bridgeport, Conn. | 30 | 18 | 8 | 4 | - | - | - | | Baltimore, Md. | 262 | 161 | 85 | 24 | 7 | 5 | 13 | |
| Cambridge, Mass. | 26 | 21 | 5 | - | - | - | - | | Charlotte, N.C. | 64 | 43 | 17 | 2 | - | 2 | 10 | |
| Fall River, Mass. | 30 | 24 | 6 | - | - | - | 2 | | Jacksonville, Fla. | 107 | 66 | 19 | 12 | 7 | 3 | 2 | |
| Hartford, Conn. | 78 | 56 | 16 | 4 | - | 2 | 6 | | Miami, Fla. † | 112 | 103 | 2 | 1 | 3 | 3 | 2 | |
| Lowell, Mass. | 25 | 20 | 4 | - | 1 | - | - | | Norfolk, Va. | 46 | 28 | 5 | 3 | - | 5 | 3 | |
| Lynn, Mass. | 22 | 18 | 1 | 1 | - | 2 | - | | Richmond, Va. | 80 | 47 | 18 | 10 | 2 | 3 | 10 | |
| New Bedford, Mass. | 27 | 24 | 3 | - | - | - | 1 | | Savannah, Ga. | 37 | 27 | 6 | 2 | 1 | 1 | 6 | |
| New Haven, Conn. | 45 | 29 | 10 | 5 | 1 | - | 3 | | St. Petersburg, Fla. | 91 | 79 | 8 | 2 | - | 2 | 10 | |
| Providence, R.I. | 69 | 53 | 9 | 3 | 2 | 2 | 3 | | Tampa, Fla. | 67 | 38 | 20 | 3 | 2 | 4 | 1 | |
| Somerville, Mass. | 4 | 4 | - | - | - | - | - | | Washington, D.C. | 87 | 51 | 18 | 9 | 3 | 6 | 4 | |
| Springfield, Mass. | 41 | 31 | 8 | 1 | 1 | - | 2 | | Wilmington, Del. | 39 | 34 | 4 | 1 | - | - | 1 | |
| Waterbury, Conn. | 48 | 38 | 6 | 3 | 1 | - | 8 | | | | | | | | | | |
| Worcester, Mass. | 52 | 46 | 1 | 4 | 1 | - | 11 | | E.S. CENTRAL | 668 | 397 | 156 | 46 | 22 | 47 | 26 | |
| MID ATLANTIC | 2,580 | 2,100 | 259 | 88 | 53 | 80 | 117 | | Birmingham, Ala. | 126 | 72 | 29 | 11 | 7 | 7 | - | |
| Albany, N.Y. | 51 | 38 | 8 | - | 1 | 4 | 2 | | Chattanooga, Tenn. | 66 | 49 | 10 | 4 | 1 | 2 | 8 | |
| Albion, Pa. | 21 | 15 | 3 | - | - | - | - | | Knoxville, Tenn. | 55 | 33 | 13 | 4 | 2 | 3 | 4 | |
| Buffalo, N.Y. | 59 | 38 | 13 | 4 | 2 | 2 | 2 | | Louisville, Ky. | 101 | 58 | 29 | 10 | - | 4 | 4 | |
| Camden, N.J. | 36 | 21 | 11 | 1 | - | 3 | 3 | | Memphis, Tenn. | 152 | 78 | 36 | 10 | 7 | 21 | 6 | |
| Elizabeth, N.J. | 27 | 19 | 8 | - | - | - | 1 | | Mobile, Ala. | 55 | 40 | 12 | 2 | - | 1 | 1 | |
| Encl. Pa. † | 29 | 22 | 6 | 1 | - | - | - | | Montgomery, Ala. | 27 | 17 | 3 | 1 | 4 | 2 | 2 | |
| Jersey City, N.J. | 50 | 34 | 9 | 5 | 2 | - | - | | Nashville, Tenn. | 86 | 50 | 24 | 4 | 1 | 7 | 1 | |
| N.Y. City, N.Y. † | 1,449 | 1,356 | 9 | 23 | 29 | 32 | 55 | | W.S. CENTRAL | 1,226 | 839 | 192 | 97 | 52 | 48 | 55 | |
| Newark, N.J. | 74 | 25 | 22 | 14 | 8 | 7 | 1 | | Austin, Tex. | 53 | 30 | 7 | 10 | 5 | 1 | 8 | |
| Paterson, N.J. | 32 | 23 | 4 | 4 | - | 1 | 1 | | Baton Rouge, La. | 39 | 22 | 9 | 6 | 1 | 1 | 1 | |
| Philadelphia, Pa. | 300 | 192 | 65 | 18 | 4 | 21 | 20 | | Corpus Christi, Tex. | 38 | 17 | 15 | 4 | 1 | 1 | 3 | |
| Pittsburgh, Pa. † | 78 | 48 | 23 | 4 | 1 | 2 | 5 | | Dallas, Tex. | 171 | 100 | 38 | 19 | 6 | 8 | 4 | |
| Reading, Pa. | 35 | 25 | 7 | 5 | 1 | 2 | 5 | | El Paso, Tex. | 49 | 33 | 7 | 3 | 3 | 3 | 2 | |
| Rochester, N.Y. | 109 | 73 | 27 | 5 | 1 | 3 | 6 | | Fort Worth, Tex. | 77 | 47 | 14 | 5 | 4 | 7 | 2 | |
| Schenectady, N.Y. | 31 | 26 | 1 | 1 | 2 | 1 | 3 | | Houston, Tex. † | 346 | 311 | 2 | 7 | 17 | 9 | 6 | |
| Scranton, Pa. † | 26 | 17 | 8 | - | - | - | 1 | 3 | Little Rock, Ark. | 56 | 26 | 17 | 6 | 2 | 5 | 7 | |
| Syracuse, N.Y. | 85 | 62 | 16 | 1 | 3 | 3 | 1 | | New Orleans, La. | 122 | 71 | 25 | 14 | 6 | 6 | - | |
| Trenton, N.J. | 31 | 22 | 8 | 1 | - | - | - | | San Antonio, Tex. | 147 | 88 | 38 | 13 | 4 | 4 | 13 | |
| Utica, N.Y. | 30 | 23 | 7 | - | - | - | 1 | | Shreveport, La. | 38 | 29 | 5 | 2 | 2 | - | 1 | |
| Yonkers, N.Y. | 27 | 19 | 6 | 2 | - | - | 3 | | Tulsa, Okla. | 90 | 65 | 15 | 8 | 1 | 1 | 8 | |
| E.N. CENTRAL | 2,329 | 1,634 | 412 | 129 | 59 | 94 | 83 | | MOUNTAIN | 597 | 361 | 140 | 49 | 22 | 25 | 31 | |
| Akron, Ohio | 83 | 52 | 27 | - | - | 4 | 2 | | Albuquerque, N.Mex. | 73 | 43 | 14 | 11 | 4 | 1 | 1 | |
| Canton, Ohio | 26 | 23 | 2 | - | - | 1 | - | 3 | Colo. Springs, Colo. | 36 | 25 | 8 | 1 | 1 | 1 | 4 | |
| Chicago, Ill. † | 553 | 462 | 11 | 26 | 16 | 37 | 16 | | Denver, Colo. | 107 | 57 | 29 | 9 | 6 | 6 | 10 | |
| Cincinnati, Ohio | 106 | 71 | 20 | 10 | 3 | 2 | 7 | | Las Vegas, Nev. | 100 | 55 | 30 | 12 | 2 | 1 | 4 | |
| Cleveland, Ohio | 157 | 94 | 45 | 7 | 4 | 7 | 1 | | Ogden, Utah | 22 | 17 | 2 | 2 | - | 1 | 2 | |
| Columbus, Ohio | 174 | 121 | 32 | 11 | 4 | 6 | - | | Phoenix, Ariz. | 120 | 70 | 29 | 7 | 3 | 11 | 4 | |
| C Dayton, Ohio | 107 | 67 | 34 | 4 | 1 | 1 | 2 | | Pueblo, Colo. | 23 | 15 | 5 | 1 | 2 | - | 2 | |
| Detroit, Mich. | 263 | 154 | 63 | 24 | 11 | 11 | 6 | | Salt Lake City, Utah | 36 | 21 | 8 | 3 | 2 | 2 | 1 | |
| Evansville, Ind. | 49 | 36 | 9 | 3 | - | 1 | 2 | | Tucson, Ariz. | 80 | 58 | 15 | 3 | 2 | 2 | 3 | |
| Fort Wayne, Ind. | 51 | 31 | 13 | 3 | - | 4 | 3 | | | | | | | | | | |
| Gary, Ind. | 31 | 15 | 6 | 7 | 3 | - | - | | PACIFIC | 1,733 | 1,157 | 332 | 140 | 52 | 46 | 114 | |
| Grand Rapids, Mich. | 69 | 53 | 10 | 3 | 1 | 2 | 8 | | Berkeley, Calif. | 18 | 10 | 5 | 2 | - | 1 | - | |
| Indianapolis, Ind. | 147 | 98 | 35 | 6 | 3 | 5 | 1 | | Fresno, Calif. | 63 | 39 | 13 | 6 | 2 | 3 | 1 | |
| Madison, Wis. | 41 | 26 | 7 | 4 | 3 | 1 | 2 | | Glendale, Calif. | 15 | 10 | 3 | 2 | - | - | - | |
| Milwaukee, Wis. | 138 | 93 | 34 | 3 | 2 | 6 | 12 | | Honolulu, Hawaii | 68 | 43 | 12 | 6 | 2 | 5 | 5 | |
| Peoria, Ill. | 48 | 34 | 11 | 2 | - | 1 | 8 | | Long Beach, Calif. | 92 | 62 | 21 | 4 | 3 | 2 | 13 | |
| Rockford, Ill. | 38 | 24 | 11 | 2 | 1 | - | 1 | | Los Angeles, Calif. | 452 | 286 | 96 | 48 | 10 | 6 | 16 | |
| South Bend, Ind. | 86 | 46 | 13 | 4 | 1 | 2 | 3 | | Oakland, Calif. | 61 | 38 | 12 | 6 | 3 | 2 | 4 | |
| Toledo, Ohio | 109 | 77 | 16 | 7 | 5 | 4 | 4 | | Pasadena, Calif. | 23 | 19 | 3 | 1 | - | - | 5 | |
| Youngstown, Ohio | 73 | 57 | 13 | 3 | - | - | 2 | | Portland, Ore. | 109 | 78 | 16 | 9 | 4 | 2 | 5 | |
| W.N. CENTRAL | 582 | 486 | 140 | 22 | 15 | 18 | 22 | | Sacramento, Calif. | 141 | 103 | 27 | 7 | 3 | 1 | 16 | |
| Des Moines, Iowa | 59 | 42 | 11 | 2 | 3 | 1 | 3 | | San Diego, Calif. | 148 | 95 | 31 | 12 | 9 | 1 | 16 | |
| Duluth, Minn. | 29 | 21 | 5 | 1 | - | 2 | - | | San Francisco, Calif. | 145 | 98 | 26 | 12 | 5 | 4 | 3 | |
| Kansas City, Kans. | 30 | 27 | 5 | 5 | 1 | 1 | - | | San Jose, Calif. | 137 | 83 | 24 | 15 | 4 | 11 | 8 | |
| Kansas City, Mo. | 108 | 69 | 31 | 1 | 1 | 6 | 6 | | Seattle, Wash. | 157 | 113 | 25 | 9 | 5 | 5 | 8 | |
| Lincoln, Neb. | 33 | 22 | 8 | 1 | - | 1 | 3 | | Spokane, Wash. | 57 | 46 | 8 | - | 1 | 2 | 10 | |
| Minneapolis, Minn. | 67 | 41 | 16 | 3 | 5 | 2 | - | | Tacoma, Wash. | 47 | 34 | 10 | 1 | 1 | 1 | 4 | |
| Omaha, Neb. | 87 | 64 | 16 | 3 | 1 | 3 | 4 | | | | | | | | | | |
| St. Louis, Mo. | 133 | 99 | 27 | 3 | 3 | 1 | 3 | | TOTAL | 11,642 | 8,242 | 1,968 | 695 | 317 | 412 | 568 | |
| St. Paul, Minn. | 83 | 53 | 7 | 2 | 1 | - | - | | | | | | | | | | |
| Wichita, Kans. | 64 | 48 | 14 | 1 | - | 1 | 3 | | | | | | | | | | |

* Mortality data in this table are voluntarily reported from 121 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fatal deaths are not included.

** Pneumonia and influenza.

† Because of changes in reporting methods in these 3 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

†† Total includes unknown ages.

‡ Data not available. Figures are estimates based on average of past 4 weeks.

TABLE V. Years of potential life lost, deaths, and death rates, by cause of death, and estimated number of physician contacts, by principal diagnosis, United States

| Cause of morbidity or mortality (Ninth Revision ICD, 1975) | Years of potential life lost before age 65 by persons dying in 1983*† | Estimated mortality June 1985 | | Estimated number of physician contacts June 1985*‡ |
|--|---|-------------------------------|-------------------------|--|
| | | Number*§ | Rate/100,000*§ | |
| ALL CAUSES (TOTAL) | 9,170,000 | 163,390 | 834.9 | 107,100,000 |
| Accidents and adverse effects (E800-E949) | 2,219,000 | 8,140 | 41.6 | 6,500,000 |
| Malignant neoplasms (140-208) | 1,808,000 | 37,180 | 190.0 | 1,500,000 |
| Diseases of heart (390-398, 402, 404-429) | 1,559,000 | 58,960 | 301.3 | 5,200,000 |
| Suicides, homicides (E950-E978) | 1,218,000 | 4,030 | 20.6 | — |
| Chronic liver disease and cirrhosis (571) | 248,000 | 2,040 | 10.4 | 100,000 |
| Cerebrovascular diseases (430-438) | 226,000 | 11,900 | 60.8 | 700,000 |
| Congenital anomalies (740-759) | 134,000 | 1,330 | 6.8 | 500,000 |
| Chronic obstructive pulmonary diseases and allied conditions (490-496) | 123,000 | 5,990 | 30.6 | 800,000 |
| Diabetes mellitus (250) | 115,000 | 2,880 | 14.7 | 3,100,000 |
| Pneumonia and influenza (480-487) | 106,000 | 4,520 | 23.1 | 600,000 |
| Prenatal care* | | | | 3,700,000 |
| Infant mortality*†† | | 3,100 | 9.6 / 1,000 live births | |

*For details of calculation, see footnotes for Table V, *MMWR* 1985;34:2.

†Years of potential life lost for persons between 1 year and 65 years old at the time of death are derived from the number of deaths in each age category as reported by the National Center for Health Statistics, *Monthly Vital Statistics Report* (MVSRI), Vol. 32, No. 13, September 21, 1984.

§National Center for Health Statistics, *Monthly Vital Statistics Report* (MVSRI), Vol. 34, No. 7, October 21, 1985, pp. 8-9.

‡IMS America *National Disease and Therapeutic Index* (NDTI), Monthly Report, June 1985, Section III.

††MVSRI Vol. 34, No. 6, September 18, 1985, p. 1.

Human Rabies — Continued

but both were ruled out because of a negative history of an injury or animal bite. Admission white blood cell count (WBC) was 25,800/mm³ and hematocrit, 49%. An arterial blood gas sample revealed a metabolic acidosis. Serum potassium was 2.9 meq/l; glucose, 389 mg/dl; lactate, 12.2 meq/l; and serum acetone, negative. Urinalysis showed a trace of protein, mild ketonuria, and 3+ glucose. He was admitted to the hospital's coronary-care unit in acute respiratory distress with a provisional diagnosis of sepsis and rupture of the esophagus, but a cine-esophagram did not confirm the latter diagnosis. A repeat chest roentgenogram examination showed air in the neck and mediastinum and right-lung infiltrates. Aspiration pneumonia was suspected. The patient was intubated for respiratory distress approximately 4 hours

Human Rabies — Continued

after admission and was treated with broad-spectrum antibiotics. Blood and stool cultures for bacteria and a blood smear for malaria parasites were negative. A drug screen of serum showed only a positive reaction for acetaminophen.

The patient improved enough by May 8 to have the endotracheal tube removed. However, over the next day, his neurologic condition deteriorated, and he became disoriented and combative. Tremors were noted in his neck. A neurology consultant felt the patient's disorientation was metabolic in origin, but suggested cerebrospinal fluid examination. The initial lumbar puncture, performed May 12, showed 3 red blood cells/mm³ and 14 WBCs/mm³ (86% lymphocytes and 14% neutrophils) and 159 mg/dl of protein. On May 13, the patient suffered respiratory arrest and required reintubation. Over the next 7 days, his course was marked by progressively deepening coma without focal signs. His electroencephalogram showed a slow-wave pattern. The patient died May 20, 2 weeks after admission.

Since rabies was not seriously suspected during the patient's illness or at autopsy, microscope examinations of the brain and other tissue specimens were given routine rather than expeditious scheduling. Consequently, microscope examination of the brain was not undertaken until early July, when the pathologist reviewed the sections from the brain. The histologic diagnosis was further supported on July 16 by a Houston neuropathologist. On July 18, formalin-fixed brain tissue preserved from the autopsy was forwarded to CDC for examination. Direct fluorescent-antibody examination gave strongly positive results, and rabies was confirmed.

On July 19, local, regional, and state public health physicians met the members of the medical staff, hospital administrators, and approximately 140 hospital employees who had had contact with the patient. Rabies postexposure prophylaxis was made available to the employees and staff members by the hospital; 85 workers elected to take the treatment. Postexposure treatment was also offered to relatives and friends who could be located; they denied exposure to the patient's saliva or vomitus and chose to receive no treatment. Cost of rabies immune globulin and human diploid cell rabies vaccine was approximately \$29,000.

Reported by BB Geeslin, MD, BB Trotter, MD, Abilene, D Armstrong, MD, Houston, C Ferris, MD, Abilene-Taylor County Health District, MJ Woltjen, MD, Texas Public Health Region 4, TL Gustafson, MD, CE Alexander, MD, State Epidemiologist, Texas Dept of Health; Div of Viral Diseases, Center for Infectious Diseases, CDC.

Editorial Note: Of the 47 rabies cases diagnosed in the United States (or in American citizens outside the United States) and reported to CDC since 1960, no history of exposure could be ascertained for 13 (28%). A median incubation period of 35 days (range 12-701) was determined for the other 34 cases. In the present case, the absence of a history of a bite or other contact with a possibly rabid animal may have been attributable to memory loss resulting from encephalitis or to miscommunication because of the language barrier. Although the source of exposure is unknown, the patient's 1½-month residency in the United States is compatible with exposure in Texas or Mexico. In the semiarid plains of Texas, skunks are the principal reservoir for rabies, although rabid bats and foxes play an occasional role in the transmission of the infection in that region. In Mexico, dogs account for most reported cases of rabies.

Five (56%) of the nine rabies cases reported to CDC since 1980 occurred among individuals who had recently lived in rabies-endemic areas outside the United States. The last two cases were foreign nationals who developed rabies shortly after arrival in the United States from rabies-endemic areas (1). In both, rabies was diagnosed postmortem. When encephalitis occurs in a person who has lived in an area where rabies is enzootic, the diagnosis should be considered seriously, even in the absence of a history of exposure. Suggestive of rabies in the present case, in addition to encephalitis, were agitation, progressive unexplained dysphagia, and later in the course of illness, fasciculations of the neck.

Human Rabies — Continued

Although the prognosis for recovery after onset of clinical illness is bleak, early suspicion of rabies will allow for rapid institution of isolation measures to reduce the number of persons exposed to the patient and eliminate most exposures that might occur in situations such as airway care, provision of oral and dental hygiene, and physical examination of the head and neck (2).

The low risk of rabies transmission to hospital personnel caring for a rabid patient (3) is supported by the absence of rabies cases in hospital contacts of the patient despite a 60- to 78-day delay in instituting postexposure prophylaxis. Postexposure prophylaxis is recommended after contact with a rabid human only if a bite or nonbite exposure (contamination of a mucous membrane or open wound with saliva or other potentially infectious material) occurred (2,4). When only persons known to be exposed are treated, unnecessary postexposure treatments can be discouraged, and substantial savings can result. Consultation with state or federal health officials experienced in evaluating human rabies is recommended.

References

1. CDC. Human rabies acquired outside the United States. MMWR 1985;34:235-6.
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Turkey-Associated Salmonellosis at an Elementary School — Georgia

Between May 10, and May 16, 1985, an estimated 351 children and staff at a Georgia elementary school developed febrile gastroenteritis. *Salmonella enteritidis*, sensitive to all antimicrobials tested, was isolated from more than 100 children; 23 were hospitalized; none died. The risk of illness was strongly associated with eating turkey salad with the school lunch on May 10, which was reported by 64 (91%) of 70 ill children and none of 13 well children in a case-control study ($p < 10^{-6}$). Culture of leftover refrigerated turkey salad yielded *S. enteritidis*; quantitative culture yielded 8.8×10^5 *Salmonella* per gram of salad. Each child received an estimated 56 grams of salad (5.0×10^7 *Salmonella*).

The turkey salad had been prepared by four asymptomatic foodhandlers. Inspection of the kitchen did not reveal foodhandling practices or equipment malfunctions that might have contributed to the outbreak, except that after being cooked and deboned May 9, the turkey was refrigerated overnight in an 8-inch deep pan.

Reported by M Smith, W Fancher, R Blumberg, MD, G Bohan, MD, DeKalb County Health Dept, D Smith, T McKinley, MPH, Office of Epidemiology, RK Sikes, DVM, State Epidemiologist, Georgia Dept of Human Resources; Enteric Diseases Br, Div of Bacterial Diseases, Center for Infectious Diseases, CDC.

Editorial Note: In studies of nontyphoidal *Salmonella* with human volunteers, the lowest dose of organisms to cause illness varied from 1.0×10^5 to 4.5×10^7 , but the amount of *Salmonella* ingested in foodborne outbreaks is often lower (1). The observation of a 100% attack rate among children consuming an estimated 5.0×10^7 organisms suggests that the minimum dose required to cause illness is much lower.

Although turkey was reported as the vehicle in only 27 (7%) of 405 foodborne outbreaks of salmonellosis reported through the CDC foodborne surveillance system during 1972-1981, it was the vehicle in seven (23%) of 30 of the *Salmonella* outbreaks occurring in schools during that time (2). Turkey was the most common vehicle for all bacterial foodborne outbreaks in Georgia schools in 1971, usually after contamination during deboning followed by inadequate refrigeration (3). When a pan more than 4 inches deep is used to refrigerate a large hot mass, the center of the mass can remain above 50 degrees for over 24 hours, allow-

Salmonellosis — Continued

ing ample growth of contaminating bacteria. Particular attention to adequate cooking and refrigeration during the upcoming holiday season can prevent turkey-associated outbreaks.

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FIGURE I. Reported measles cases — United States, weeks 42-45, 1985



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